Compliance Assessment Report CAR_NRW0040855

Permit being assessed: BS6149IQ.
For: Pencoed Rockwool EPR/BS6149IQ, held by Rockwool Ltd
At: Rockwool Ltd , Bridgend , Mid Glamorgan , CF35 6NY.

Type of assessment carried out: Site Inspection, Reason: Routine.
On 14/12/2022 between 09:30 and 15:00.
Parts of permit assessed: Emissions, monitoring, management controls, amenity and waste

NRW Lead Officer: Antony Leakey.
Report sent to: Victoria Hillman, SHE Manager on 12/01/2023.

1. Summary of our findings (full details in section 4)

Part of permitted activity assessed (criteria)	Assessment result	Permit condition
C2 - General Management - Management system and operating procedures	C3 Minor	1.1.1
G4 - Monitoring and Records, Maintenance and Reporting - Reporting and notification to Natural Resources Wales	C3 Minor	4.3.1
E1 - Emissions - Air	C2 Significant	3.2.1
C2 - General Management - Management system and operating procedures	C2 Significant	1.1.1
E1 - Emissions - Air	C3 Minor	3.1.2
E1 - Emissions - Air	C2 Significant	3.1.2
E1 - Emissions - Air	C3 Minor	3.1.2
E3 - Emissions - Surface water	Assessed (A)	
G1 - Monitoring and Records, Maintenance and Reporting - Monitoring of emissions and environment	C3 Minor	3.5.1

Result types are explained in more detail in the 'Important Information' section below.

Total number of non-compliances recorded	Total non-compliance score
8	113

How we use the non-compliance score to calculate your annual fee is explained in the 'Important Information' section below.

2. What action is required?

Criteria	Action needed	Complete by
C2	2. Rockwool to implement a periodic review of the ducting deep clean down regime to minimise the amount of process residue in the plant ducting which can smoulder if hot melt impinges on it.	31/03/2023

Criteria	Action needed	Complete by
G4	1. Review and update Rockwool reporting procedures to ensure that all permit condition non-compliance, incidents, and events with potential for environmental impact or public complaint are notified to NRW without delay and immediately where possible. Implement any identified improvements and provide a copy of updated Environmental Work Instruction 15 ("NRW Notification of Environmental Incident / Breakdown or Breach of Limit") to NRW.	31/03/2023
E1	Process water ammonia monitoring and control has been implemented.	Already completed
C2	Rockwool to review ammonia emissions control and abatement options across all relevant release points to reduce nutrient nitrogen and ammonia impacts on habitats and conservation sites within range, including the potential to reduce ammonia emissions below the lower end of the BAT AEL range. Confirm to NRW details of proposed improvements as additional information to the current sulphur dioxide abatement variation application.	31/03/2023
E1	Process water ammonia monitoring and control has been implemented.	Already completed
E1	Rockwool to review ammonia emissions control and abatement options across all relevant release points to reduce nutrient nitrogen and ammonia impacts on habitats and conservation sites within range, including the potential to reduce ammonia emissions below the lower end of the BAT AEL range. Confirm to NRW details of proposed improvements as additional information to the current sulphur dioxide abatement variation application.	31/03/2023
E1	Line 1 shut down due to insufficient demand and abatement installed on Line 3.	Already completed
G1	Rockwool to review surface water discharge monitoring approach to address the issues identified in the OMA report.	31/03/2023

Action criteria codes are listed in the 'Important information' section below.

3. What will happen next?

Any non-compliance we have identified and recorded on this form is an offence. It can result in criminal prosecution and/or suspension or revocation of your permit.

You are non-compliant with your permit.

We are currently considering taking enforcement action against you for the non-compliance recorded above. We will contact you in due course.

4. Details of our assessment

Rockwool Limited
Site inspections 18 May, 26 May and 14 December 2022, emissions and reporting review December 2022

Summary of previous CAR action status			
Permit condition	Action summary	Due date	Action status
4.3.1	Review of reporting procedures	31/12/21	Complete, but further review required (see action below)
1.1.1	Review management of change process	31/8/22, follow up required, ongoing	Review completed and formation of new Quality Team will be formed to progress implementation of improvements to wider management system including MoC procedures.
3.1.2	Review DAHS and CEMs data reporting	31/8/22	DAHS procurement progressing and installation scheduled for Jan/Feb 2023
n/a	PRTR data amendments	31/12/21	Complete
3.5.5	CEMs performance against specified CIs	Ongoing	Ongoing – carried forward to OMA
3.5.1	Reporting to EN 17255	Ongoing	Implementation through DAHS replacement
3.1.2	Line 3 SO_2 abatement	Ongoing	Commissioning in progress and variation application submitted.
2.3.4	Pit slag recovery	Ongoing	Quarterly updates to be provided
n/a	PSA carbon capture trial	Ongoing	Ongoing
3.1.2	A12 abatement review	Ongoing	Maintenance works undertaken in 2021 and further inspection planned Christmas 2022. Follow up required on thermal oxidiser unit maintenance regime.

Line 3 filter house fire investigation

NRW received complaints of strong unpleasant odour and a thick visible plume from the Line 3 main stack on the evening of 9 May 2022. Rockwool confirmed on the afternoon of 10 May that a duct fire had occurred.

Rockwool confirmed that this was a routine hot melt ignition event in the filter house on Line 3, which escalated due to unusual circumstances which resulted in the safety system failing to operate as intended. A filter house deluge system is triggered by individual filter slab

temperature monitors located in the flue gas space above at 90^{o}C. In this case the deluge failed to operate because the temperature increase resulting from the localised fire on the oldest filter slab (see below for slab replacement routine) resulted in a peak temperature of only around 70^{o}C.

Rockwool confirmed that the deluge trip temperature has been reduced to 75^{o}C during a site inspection on 14 December 2022 and demonstrated this by showing the DCS trip set point details.

The process operators extinguished the local filter house fire and replaced the damaged filter slab during the night shift but failed to detect that smouldering of binder residues in the downstream duct had started or was initiated once the line was restarted by the increase in spinning chamber flue gas flow.

The duct smoulder was detected during a routine 3 hourly “sticky” pad filter integrity check the following morning and the line was shut down to clean the ducting thoroughly.

There are 7 filter slabs in the house which trap some surplus binder carried forward from the spinners. Some binder is also carried forward to the downstream ducting and process water sprays are used to knock this out of the vent stream. The binder consists of phenol-formaldehyde resin, oil (for water repellence properties in the final product), ammonia to delay resin curing and recycled process water. It is accumulated oil on the filter slabs which can ignite when molten rock is carried forward from the spinners, particularly during start up.

The process operating data for the week leading up to the incident show that binder feed rates were typical and not excessive. Melt feed to the spinners is controlled using a tilting trough system to ensure even distribution to the spinners. The trough tilt is controlled automatically using power ratio signals from the spinner wheels 3 and 4. Power ratio is a proxy measure of melt loading on the spinner and the system minimises routine carry over of melt from the spinners. The highest power ratio deviation is experienced during restart of the process and the incident occurred about 1 hour after restart from a routine iron tapping operation when a higher carry over of melt might be expected. The process operating data again show that the system was in control during the period before the incident.

In addition to process control measures as detailed above, management of accumulation of excess binder components in the filter house and downstream ducting is clearly a critical control measure to prevent or minimise this type of incident. Rockwool changes the filter slabs on a weekly basis, one of the seven slabs being replaced each day. Slab 5 where the localised fire took place was due for replacement the day following and so was the most heavily contaminated in the filter house. This suggests that there may be some risk reduction benefit in reducing the interval between filter slab changes.

Ducting deep cleaning was undertaken on an annual basis, 12-weekly intervals are now proposed. Clearly the frequency was insufficient to minimise the risk of a ducting fire given the expectation that “punking” incidents could occur. Over 10,000 tonnes of binder materials were supplied to Rockwool in 2021. Line 3 produces over 50% of the factory output and has a reported binder efficiency of 85%, equating to losses into the line 3 filter house of around 750 tonnes/year or more than 2 tonnes/day. A significant proportion of these losses will be washed out into the process water by the filter and duct cooling sprays. Nevertheless, it can

be anticipated that a non-trivial quantity of material will remain and require periodic removal. This is reflected in the BAT reference document covering this type of process. Section 4.5.6.1, p 284, recognises that duct cleaning as frequently as every few weeks at the end of each cupola campaign may be necessary. Clearly the Rockwool management system did not adequately consider the risk posed by accumulation of binder residues in the ducting.

Assessment of the environmental impact of the incident suggests that this is unlikely to have been significant because of the small scale of the ignition and the continued dispersion of the flue gases from the 75-metre-high main stack. The main fuel source involved was oil residues used to coat the Rockwool product as a water repellent, which ignited when hot melt impinged on one of the flue gas filter elements. The emissions from this source will not have been significant and equivalent to burning a small quantity of diesel in the much larger process air flow through the system.

The nature of the odours experienced by residents in the area are likely to be related to releases of ammonia from the process water used to quench and clean down the filter house and ducting. Ground level concentrations of ammonia were probably elevated downwind of the stack due to a period of time when the main stack draught fan was switched off to allow safe access to the filter house for plant personnel. The natural draught of the stack during this period was much lower than the induced draught when the fan is operating and may have resulted in the plume grounding sooner than usual leading to significant localised odours. The lower end of the odour detection threshold range for ammonia is very low and well below environmental harm assessment levels, so the detection of unpleasant odour during the incident does not indicate potential for harm. Other potential trace pollutants such as formaldehyde and phenol from thermal decomposition of the binder resin have been assessed using worst-case assumptions and existing modelled air quality impacts to conclude that overall, the potential for significant air quality effects was limited.

There is no continuous monitoring of the spinning chamber flue so there is no evidence that ELVs were exceeded during the incident. However, the worst-case impact assessment takes this into account and no non-compliance with permit condition 3.1.2 for actual or potential ELV exceedances is recorded because this cannot be verified.

The AQ impact couldn't have been worse than it was because there was effectively no management of the quantity of binder residue accumulating in the ducting between annual cleaning and the filter fire control system appears to be ineffective. Therefore, the non-compliance associated with inadequate management of filter fires and binder accumulation in ducting is a category 3 non-compliance with permit condition 1.1.1.

There was again an apparent delay in reporting the incident to NRW despite a previous review and update of Environmental Work Instruction 15 ("NRW Notification of Environmental Incident / Breakdown or Breach of Limit"). NRW should be informed immediately of such incidents, even if considered routine, in case residents contact NRW with concerns. This enables NRW to make judgements on environmental impact and provide reassurance if necessary. Permit condition 4.4.2 defines that "immediate notification" may be by telephone, although an email to the NRW Incident Communication Centre icc@cyfoethnaturiolcymru.gov.uk would also be acceptable with justification. Environmental Work Instruction 15 should include the requirement for immediate notification of the NRW ICC using telephone number 03000 65 3000 at any time of the night or day where possible. The Part A notification format and information can follow as soon as possible after the initial

immediate notification but should normally be well within 24 hours.

Work Instruction 15 also states that a 20% uncertainty allowance should be used when determining if non-compliance with an ELV has occurred. Application of a blanket 20% uncertainty budget to water emissions analysis is unlikely to be justifiable when determining ELV compliance because most analytical results will specify an uncertainty budget relating to the individual result. The individual result uncertainty budget should be used and reported with the notification of the exceeded ELV, rather being used as a basis to not notify.

It may be helpful to provide non-exhaustive examples of significant adverse environmental effects to aid reporting decisions, e.g. dust emissions with off-site impact, noise levels likely to cause complaint, odorous emissions likely to cause complaint.

A category 3 non-compliance with permit condition 4.3.1 for failing to notify NRW immediately following the initial fire incident and subsequent ducting smoulder will also be recorded. This level of non-compliance is considered appropriate due to the limited potential for significant impact from this incident.

Actions required by 31 March 2023:

1. **Review and update Rockwool reporting procedures to ensure that all permit condition non-compliance, incidents, and events with potential for environmental impact or public complaint are notified to NRW without delay and immediately where possible. Implement any identified improvements and provide a copy of updated Environmental Work Instruction 15 ("NRW Notification of Environmental Incident / Breakdown or Breach of Limit") to NRW.**
2. **Rockwool to implement a periodic review of the ducting deep clean down regime to minimise the amount of process residue in the plant ducting which can smoulder if hot melt impinges on it.**

Process water system

During a tour of the process water system as part of the Operator Monitoring Assessment for water discharges in May 2022 strong ammonia odour was present around the line 1 and 2 Poeth filter. The building was well ventilated, suggesting that the ammonia release was due to saturation of the process water causing ammonia to vaporise from solution during filtration on the open filter band, representing a significant fugitive release.

Ammonia odour was also noticeable above the process water storage tanks, although to a lesser extent, suggesting that more significant ammonia accumulation is occurring at lines 1 and 2. This is supported by Rockwool's assertion that binder efficiency is lower on lines 1 and 2.

The accumulation of ammonia in the process water system, which may have implications for the plume visibility, compliance with spinning chamber stack ELVs (see below), as well as fugitive emissions to air and BAT for minimising point source ammonia emissions, is not subject to any process control or quantification.

It is possible that ammonia and dust emissions are higher than they need to be across the 3

production lines due to accumulation of ammonia in the process water. Control of process water quality is a requirement of the Bref (Section 2.9, page 70) and may also reduce fugitive ammonia emissions and the variability of the stack emissions.

It is likely that ammonia (and other pollutants) will accumulate excessively in the process water during dry periods when there is less rainfall diluting the process water inventory. It may be appropriate for "fresh" ammonia dosing rates into the binder formulation to be actively varied depending on the standing ammonia concentration in the process water being used to make up the binder solution.

Total ammonia and ammonium sulphate use in the process is up to 800 tonnes per annum. PRTR data suggests that point source ammonia emissions are less than 200 tpa and wastewater losses very low. Some ammonia will be lost in point source particulate matter as sublimed ammonium salts (less than 40 tpa) and some will remain in the binder as part of the finished product. However, given the volatility of the aqueous ammonia feed stock it is considered likely that a significant proportion of this material is lost as fugitive emission from the process water system or as unaccounted point source releases. This fugitive/unaccounted release could be an additional 200 tpa or more. Releases from the Rockwool installation are already predicted to exceed the critical level for ammonia and nutrient nitrogen critical load at Brynna a Wern Tarw SSSI. Lichen surveys indicate that the species present at the SSSI are moderately sensitive to air pollution and so, while major acute impact is not considered likely, chronic significant impacts could occur and a reduction of ammonia emissions over time will be necessary.

Therefore, the non-compliance associated with inadequate management of ammonia accumulation in the process water system leading to fugitive releases of ammonia is a category 2 non-compliance with permit condition 3.2.1.

Failure to recognise the potential environmental compliance implications of allowing uncontrolled ammonia accumulation in the process water system is a management system failure and constitutes a further category 2 non-compliance with permit condition 1.1.1.

During the site inspection on 14 December 2022 Rockwool confirmed that process water ammonia monitoring and control has been implemented and data showed that levels are being maintained in the range 600-1000 mg/l, well below saturation levels. Inspection of the Poeth filters for all lines and the main process water tanks showed no discernible ammonia odour in contrast to the situation in May 2022. This improvement, if sustained, is expected to reduce ammonia emissions from the spinning line stacks as well as fugitive releases. This outcome will be reviewed at the next compliance meeting.

Rockwool also confirmed that an ammonium sulphate leak from a failed gasket in the bulk storage system during August 2022 had contaminated the process water system and cause product quality problems until the issue was discovered. Details of the scale of the leak, the root cause, and implications for emissions due to elevated process water ammonia levels are currently unclear and will need to be investigated further.

Action required by 31 March 2023:

Rockwool to provide details of ammonium sulphate leak RCI and impact on emissions.

Rockwool is already aware of the significant process contribution to the exceeded critical level for ammonia and nutrient nitrogen critical load at Brynna a Wern Tarw SSSI from the historic dispersion modelling reports and previous interventions by NRW and has taken action to address ammonia emissions by reducing ammonia levels in the binder formulation by around 20% since 2016. However, this is as low as ammonia levels can be taken through this route and further action is required.

Consideration is being given to ammonia-free binder formulation, but these are not expected to be implemented for some time. An ammonia abatement approach that recovers ammonium sulphate for reuse in the binder is due to be commissioned at a sister plant in Europe. If successful Rockwool will implement the technology in Wales

Regardless of the success of the proposed ammonia abatement the existing high level of ammonia impact from point sources will require action to reduce emissions. This should be progressed by providing additional information to support the sulphur dioxide abatement application (see details below) setting out plans for ammonia emissions reduction over time, including details of the potential abatement option subject to successful implementation at the sister plant.

Action required by 31 March 2023:

> **Rockwool to review ammonia emissions control and abatement options across all relevant release points to reduce nutrient nitrogen and ammonia impacts on habitats and conservation sites within range, including the potential to reduce ammonia emissions below the lower end of the BAT AEL range. Confirm to NRW details of proposed improvements as additional information to the current sulphur dioxide abatement variation application.**

CEMs quality assurance

NRW is currently reviewing policy and guidance on application of the principles of the QA standard EN 14181 to processes not subject to IED Chapter III or IV (large combustion plant and incinerators).

NRW understands that Rockwool will be replacing the existing hybrid CEM/spreadsheet data acquisition and handling system (DAHS) with an MCERTS DAHS during January/February 2023. This should allow scope for more rigorous implementation of QA processes without the need for significant staff resources. NRW will audit CEM QA arrangements in detail as part of an Operator Monitoring Assessment when the new DAHS is operational and after any update to NRW guidance.

Rockwool should also ensure that the proposed new DAHS meets the requirements of standard EN 17255 or has capability for upgrading to implement these requirements.

There remains an outstanding action linked to the original software changes that resulted in the misreporting of emissions data regarding management of change for non-capital projects. NRW understands that an ongoing quality management system review will seek to address this.

Action required by 31 March 2023:

Rockwool to confirm proposals for implementation of a management of change process for changes not captured within the scope of capital project change management.

SO_2 emissions abatement

Soda ash dry sulphur dioxide abatement has been installed on line 3 cupola to enable tighter control on emissions and avoid process interruption when emissions are high.

A normal variation is likely to be required to incorporate the proposed abatement changes into the permit and assess potential consequential impacts associated with noise, energy use and waste management, as well as setting a revised emission limit. A variation application has been made by Rockwool and is awaiting determination. In the meantime, commissioning of the abatement can proceed once a provisional outlet or disposal route for the solid abatement residue has been identified.

The Glass and Mineral Wool Bref sets a BAT AEL of 1400 mg/m^3 as the basis for the ELV for cupola sulphur dioxide releases for processes where waste streams are recycled into the cupolas. However, consideration may need to be given to achievement of a lower ELV if sufficient ammonia emissions reductions cannot be achieved to reduce the acid deposition critical load exceedance at local sensitive receptors.

ACTION: Rockwool to confirm details of sulphur dioxide abatement residue outlet or disposal route ahead of commissioning.

Pit slag legacy stock

Following further discussions with Waste policy team and colleagues regulating the potential landfill utilisation, the two identified uses for the slag can proceed on the following basis:

- Wastewater filtration – all the technical and legal queries are resolved, and this end-of-waste use can proceed.
- Engineering aggregate for landfill construction – an NRW approved design and CQA plan utilising this material would constitute a valid end-of-waste use.

Action: Rockwool to provide quarterly updates on progress in reducing the slag stockpile.

Complaints and incident review

Line 3 stack dense plume – 6/6/2022 - an issue opening/closing a damper in the combustion system of the cupola exhaust at 18:42. The safety control system activated, and the abatement systems were bypassed for a total of 63 seconds (2 events of 54 seconds and 9 seconds). This bypass event may have led to a more visible plume.

The instrument air feed to the damper was checked and reconnected after the event and was observed to be functioning correctly. It is unclear how the air supply became disconnected or if the damper is fitted with limit switches to enable detection of such problems to prevent abatement bypass.

Action: Rockwool to review the need for failure detection of critical dampers that could result in abatement bypass by 31/3/23.

Numerous complaints of dense visible plumes from line 12 stack have been received by NRW during 2022. These may be linked to the restart of line 1 last year, which appears to have a more visible plume. However, the plumes from lines 1 and 2 spinning chamber flues are generally more visible and denser than from line 3. This may be due to different efflux velocities between the spinning chamber and cupola flues on line 12 which may be allowing separation and more rapid cooling of the ammonia laden spinning flue gases. However, the impact of improved control of ammonia levels in process water should be examined initially to establish if improved plume opacity can be achieved. Ultimately abatement of ammonia emissions on these lines may also be required in addition to line 3.

Sulphurous odours at Chapel Road on 12/10/22 - Line 2 cupola was starting up in the afternoon after a couple of days' shut down. Two dampers were not opening/closing as designed, so filter bypass was used for 10 minutes at 16:18. This was quickly resolved by the operators. After this, there were no abnormal running conditions on any of the cupolas. Low plume buoyancy during start up may be causing increased grounding of emissions leading to sulphur dioxide odour.

Action: Rockwool to review damper testing and maintenance regime, start up procedures and controls to reduce the potential impact in future and provide an update at next compliance meeting.

Blast furnace slag delivery arrived at 06:05h and may have contributed to hydrogen sulphide odours in the damp conditions on the day as the fresh BFS reacted with atmospheric moisture.

Rockwool has now confirmed that “fresher” BFS will not be delivered from Tata and instead only sufficiently “weathered” material (generally older than 6 months) will be delivered to minimise rotten egg odours around the site. Inspection of the BFS stock on 14 December 2022 indicated that odour was undetectable close to the bay.

Rockwool data from the onsite weather station indicated that the wind direction for the majority of the 2-hour period was coming from the SSE. Chapel Road is downwind for SW or WSW directions. Any southerly wind direction has potential to move odour from the site up to the location of this complaint due to the topography, although the more general regional air flow was SW. The site weather station may not be sufficiently clear of buildings so that it is not affected by local deflection.

NRW will follow up action progress with Rockwool at next compliance meeting.

Emissions review

Dust releases from A1 (Cupola 1) marginally exceeded the ELV on 6/03/2022 but as only 28 valid half-hourly averages were recorded the daily average was not considered to be valid based on prior agreements with NRW and therefore not a non-compliance with permit condition 3.1.2. However, the standard EN 17255 on emissions data processing requires only 6 valid hours (12 valid half-hourly averages) to constitute and valid daily average. Rockwool will need to report valid daily averages based on EN 17255 in future and report any non-compliance appropriately.

Action: Rockwool to **implement valid daily average reporting based on requirements of EN 17255 when new DAHS is commissioned.**

Sulphur dioxide emissions from Line 2 cupola (A2) exceeded the daily average ELV on 17/5/22. Rockwool record the value as invalid (12 hours production only). Again, reporting to EN 17255 will be necessary in the future.

A2 CEM failure following power loss and autocalibration on 23/2/22, 30/5/22 and 13/6/22.

A19 CEM failure following autocalibration/service on 11/5/22, 30/5/22 and 13/6/22.

Reliability of the CEMs is a concern because the total number of invalidated daily averages per line per pollutant is approaching the limit allowed by the permit. Investigation into improvement of reliability or the provision of installed spare CEMs may need to be considered. However, Rockwool believe that the new DAHS installation will improve reliability as the main problem with data loss relates to communications faults between the CEMs and the current data collection system.

Action: Rockwool to review reliability of CEMs following DAHS commissioning and provide an update at next compliance meeting.

Ammonia and dust ELV exceedance line 1 spinning chamber (A3) – 29/6/22. This non-compliance may be linked to concerns over control of ammonia concentration in the plant process water (see above) and the generation of secondary particulate matter in and after release from the stack due to ammonia reacting with acid gases, such as sulphur dioxide, HCl and NOx.

While the duct temperature control and filter system condition may be contributing factors, ammonia and dust emissions were likely to be higher than they need to be across the 3 production lines due to accumulation of ammonia in the process water. Control of process water quality is a requirement of the Bref and will also address fugitive ammonia emissions as well as reducing the variability of the stack emissions.

Examination of the dispersion modelling report for the installation suggests that the exceeded dust ELV is unlikely to result in ground level concentrations of PM2.5/10 above the air quality standards even over a prolonged period.

Therefore, the dust release is a category 3 non-compliance with permit condition 3.1.2 for actual ELV exceedance with minor impact.

The ammonia release is a category 2 non-compliance with permit condition 3.1.2 for actual

ELV exceedance with potentially significant impact due to the ongoing high process contribution to exceedance of the nutrient nitrogen and acid deposition critical loads and the potential for the high emissions to have occurred for a prolonged period.

Sulphur dioxide emissions from Line 2 cupola (A2) marginally exceeded the daily average ELV on 21 and 29/6/22. The former was not notified.

This is a category 3 non-compliance with permit condition 3.1.2 for an ELV exceedance with minor impact because modelling has demonstrated that emissions at the current ELV are sufficiently below relevant environmental assessment levels or the contribution to critical load exceedance is lower than for other pollutants (ammonia dominates).

High ammonia results are noted for releases from A21 and A23, although uncertainty budgets mean that these may not have exceeded the ELV and are in compliance with permit condition 3.1.2. This is a further indication that ammonia levels throughout the process were not fully in control.

Carbon monoxide emissions from Line 3 cupola (A19) marginally exceeded the daily average ELV on 22/6/22. Rockwool has correctly recorded the value as invalid (2 hours production only).

Pollution inventory (E-PRTR) reporting indicates high annual releases (>60 tonnes in 2021) of nitrous oxide (N_2O). The Rockwool calculation methodology requires review.

Action: Rockwool to submit nitrous oxide mass emissions calculation methodology and supporting evidence to NRW for review by 31/3/23.

Monitoring data for Q1, Q2 and Q3 2022 has been reviewed and no breach of permit conditions was identified other than those already identified and discussed in this report.

Waste reporting form still refers to “controlled” waste, whereas this should be “non-hazardous” if applicable. Notes referencing any WM3 assessments that demonstrate that a particular waste stream is non-hazardous or hazardous should also be included in this form. Breakdown of waste stream by type/source should also be as narrow as possible and no waste streams should be deliberately mixed on site or during collection.

Action: Rockwool to ensure future waste reporting addresses the above comments.

Water Operator Monitoring Assessment (OMA)

An OMA of surface water discharge monitoring was undertaken on 26/5/22 and an overall score of 69% was achieved. Use of an analytical laboratory with UKAS accreditation to MCERTS/ISO 17025 will ensure good monitoring data integrity, however representative sampling and preservation aspects are compromised and need to be resolved. Management, audit and procedural aspects could be improved to provide greater assurance. See separate OMA report for details.

The sample integrity issues represent a non-compliance with permit condition 3.5.1. This is a category 3 non-compliance due to the intermittent and infrequent discharge to surface water.

Action: Rockwool to review surface water discharge monitoring approach to address the issues identified in the OMA report.

END

If you have any queries about this report, or to discuss completion of any actions, please contact the NRW Officer named above.

Important information

Legal status of this report

Your permit is issued to you under the Environmental Permitting Regulations. You have a responsibility to comply with the conditions of your permit and prevent pollution/harm of the environment. You must also ensure that you comply with any other relevant legislation that may apply to your site's operations.

This report explains the findings of our assessment and any action you are required to take. We categorise non-compliance using our guidance for assessing non-compliance at regulated sites.

When we find potential non-compliance/s we will normally give you advice on how to maintain compliance.

To correct non-compliance, we may:

- require you to take specific actions
- issue a notice
- review the conditions of your permit.

Any advice and guidance we give will be without prejudice to any other enforcement response that we consider may be required.

Assessment results and non-compliance categories (used in section 1):

Assessment result	Description
Assessed (A)	Assessed or assessed in part, no evidence of non-compliance found
Action only (X)	Action only relating to the activity assessment
Ongoing (O)	Ongoing non-compliance, not scored

Non-compliance category	Description	Score
C1 Major	Potential to have a major, serious, persistent and/or extensive impact or effect on the environment, people and/or property	60
C2 Significant	Potential to have a significant impact or effect on the environment, people and/or property	31
C3 Minor	Potential to have a minor or minimal impact or effect on the environment, people and/or property	4
C4 No environmental impact	Non-compliance at a regulated site that cannot foreseeably have any impact on the environment, people and/or property	0.1

How we use assessment scores

The number and severity of non-compliances recorded in a year will affect your annual subsistence fee the following year. A non-compliance factor is added to your site's Operator

Performance Risk Appraisal (OPRA) score when we calculate your fee to reflect the additional resource we use to assess permit compliance.

What are suspended scores?
In line with our guidance, we may suspend scores for up to six months to allow time for remedial action to be taken. Suspended scores will be re-instated if the action is not completed.

Full list of Industry and Waste action criteria (used in section 1 and 2):

A: Permitted activities
- A1 Specified by permit

B: Infrastructure
- B1 Infrastructure – Engineering for prevention and control of emissions
- B2 Infrastructure – Closure and decommissioning
- B3 Infrastructure – Site drainage engineering (clean and foul)
- B4 Infrastructure – Containment of stored materials
- B5 Infrastructure – Plant and equipment

C: General management
- C1 General management – Staff competency/training
- C2 General management – Management system and operating procedures
- C3 General management – Materials acceptance
- C4 General management – Storage, handling, labelling and segregation

D: Incident management
- D1 Incident management – Site security
- D2 Incident management – Accidents, emergency and incident planning

E: Emissions
- E1 Emissions – Air
- E2 Emissions – Land and groundwater
- E3 Emissions – Surface water
- E4 Emissions – Sewer
- E5 Emissions – Waste

F: Amenity
- F1 Amenity – Odour
- F2 Amenity – Noise
- F3 Amenity – Dust/fibres/particulates and litter
- F4 Amenity – Pests/birds and scavengers
- F5 Amenity – Deposits on road

G: Monitoring and records, maintenance and reporting
- G1 Monitoring and records, maintenance and reporting – Monitoring of emissions and environment
- G2 Monitoring and records, maintenance and reporting – Records of activity, site diary/journal/events
- G3 Monitoring and records, maintenance and reporting – Maintenance records
- G4 Monitoring and records, maintenance and reporting – Reporting and notification to Natural Resources Wales

H: Resources efficiency
- H1 Resource efficiency – Efficient use of raw materials
- H2 Resource efficiency – Energy efficiency

Enforcement response
Any permit condition non-compliance is an offence and we may take legal action against you. Action we take can include prosecution, serving a notice on you and/or suspension or revocation of your permit. See our Enforcement and Sanctions Guidance for further information.

Data protection notice
You should make sure that anyone named in this report knows that the information it contains will be processed by Natural Resources Wales to fulfil its regulatory and monitoring functions and to maintain the relevant public register(s).

We may also use and/or disclose the report in connection with:

- offering or providing you with our literature or services relating to environmental matters
- consulting with the public, public bodies and other organisations (e.g. Health and Safety Executive, local authorities) on environmental issues
- carrying out statistical analysis, research and development on environmental issues
- providing public register information to enquirers
- investigating possible breaches of environmental law
- assessing customer service satisfaction and improving our service
- Freedom of Information Act or Environmental Information Regulations requests.

We may also pass it on to our agents or representatives to do these things on our behalf.

Disclosure of information – this report will be available to view on-line
If you think this report contains commercially confidential information that should not be placed on our public register, you must contact your local Natural Resources Wales office within **fifteen working days** of receiving this report, using the contact details in the accompanying email or letter. You must give a full explanation of why it should not be added to our public register, including specifying which information is commercially confidential. We will assess your request and respond to you within 20 working days to let you know if we agree to your request.

What do I do if I disagree with the report or have a complaint?
If you disagree with this compliance assessment report, you should contact the lead officer without delay to discuss your concerns.

If you are unable to resolve the issue with the lead officer or their line manager you should contact our Customer Contact team on 0300 065 3000 (Monday to Friday 08:00 – 18:00), or email enquiries@naturalresourceswales.gov.uk for details of how to raise your dispute further through our Complaints and Commendations procedure.

If you are dissatisfied with our response, you can contact the Public Services Ombudsman for Wales by phone on 0300 7900203 or by email at ask@ombudsman.wales

Welsh Language Standards
We are committed to establishing Natural Resources Wales as a naturally bilingual organisation. We will provide compliance reports in your preferred language.